

US EPA ARCHIVE DOCUMENT

Corrective Action Framework (CAF) Template

Introduction

For regulators and facilities wishing to utilize an RFI Lean approach this model CAF Template¹ may be used as a tool for drafting the facility specific CAF. The CAF is a tool generally intended to summarize the goals and expectations for the RFI process. A key principle of an RFI Lean approach is that the regulatory authority work with the facility through preliminary discussions early on in the RFI process to set up a CAF Meeting and then to develop the CAF.

As part of an RFI Lean approach the regulatory authority or facility representatives usually develop the CAF. This party should be selected during the CAF meeting and coordinate closely with all participants during development. EPA expects that much of the work in developing a CAF will occur during and immediately after the CAF meeting.

EPA anticipates that the more complete the discussions included with the CAF document, the more useful the parties will find the CAF as the RFI process proceeds. This is because additional detail can help identify potential issues that may need attention for the RFI to continue smoothly. To this end, suggestions are included throughout the template to help the user identify and fully discuss relevant considerations. Nevertheless, the user should also keep in mind that the elements included in the model CAF Template are intended as suggestions, and may not be appropriate for their particular situation. Users are encouraged to identify for inclusion in their CAF elements that will be responsive to the RFI process contemplated at the facility, and adapt this model as appropriate.

Finally, parties should be careful to consider the obligations contained in any permits and orders when developing their CAF, in order to maximize its usefulness. This is because the CAF itself is not a legally binding document and does not create new legal obligations or limit or expand obligations under any federal, state, tribal or local law. The CAF is also not a substitute for a

¹ This document is intended to provide guidance to EPA personnel on implementing the RCRA Subtitle C program. As indicated by the use of non-mandatory language such as “guidance,” “recommend,” “may,” “should,” and “can,” it identifies policies and provides recommendations and does not impose any legally binding requirements. This document is not a rule or regulation, may not apply to a particular situation based upon the circumstances, does not change or substitute for any law, regulation, or any other legally binding requirement and is not legally enforceable. While EPA has made every effort to ensure the accuracy of the discussion in these documents, the obligations of the regulated community are determined by statutes, regulations or other legally binding requirements. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling. In addition, under RCRA, states may apply to EPA for, and receive from EPA, authorization of a state program to operate in lieu of the federal RCRA hazardous waste program. These state programs may be broader in scope or more stringent than EPA’s RCRA regulations, and requirements can vary from state to state. Members of the regulated community are encouraged to contact their state agencies for the requirements that apply to them.

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permit or order. The CAF may only alter legal obligations when it is explicitly incorporated or referenced in a new permit (or order, for interim status facilities) or through a permit modification (or order modification for interim status facilities). Thus (unless so incorporated or referenced) the obligations in a permit or order would control over any conflicting CAF provisions. Therefore, to maximize the usefulness of the CAF, parties should be careful to either work within the scope of any existing obligations contained in any permit(s) and/or order(s) when developing their CAF, or to modify the permit consistent with the requirements in 40 CFR sections 270 and 124. In the CAF Template, EPA has identified areas where it expects that particular attention to permit and/or order obligations may be warranted. However, such obligations should be considered in developing all aspects of the CAF, not just where explicitly mentioned.

For more information about the CAF Meeting, please see the CAF Guide and Model CAF Meeting Agenda that accompany this document.

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Corrective Action Framework*[Facility name]**[EPA ID]**[Address]*

The Corrective Action Framework (CAF) is a tool intended to summarize the goals and expectations of the *[regulatory authority]* and the *[Responsible Party, facility, or Representative]* that will facilitate the RCRA Facility Investigation (RFI) at the *[facility name]*. The CAF is not a legally binding document and does not alter any legal requirements under any permit or order applicable to the facility. Nor is the CAF a substitute for a permit or order. Only where the CAF is expressly incorporated into a new permit (or order, for interim status facilities) or incorporated through a modification to an existing permit (or order for interim status facilities) will the CAF become an enforceable condition of the permit (or order for interim status facilities). The CAF is also not expected to address every technical or administrative aspect or detail of the RFI. Rather, the CAF describes the discussions that took place during the CAF meeting or any subsequent meetings (e.g., elevation to management for resolution of differences to avoid delay). The CAF also documents material exchanged during the CAF meeting(s) which are necessary for the RFI to efficiently commence. Note that this CAF is a “living document” and is subject to change in light of new information or data.

[The sections below should be included as appropriate, to address the CAF goals for the specific facility.]

I. CAF Meeting Participants

[Provide a list of meeting attendees, including name, title, employer, and contact information]

II. Site Characterization

[Provide a brief overview of the types of facility characteristics discussed in the CAF meeting, primarily focusing on the historical and current operational characteristics of the facility.]

a. **Overview of facility/surrounding properties**

[Provide a description of the uses of the facility and surrounding properties, including land uses.]

b. **Environmental characteristics**

[Briefly discuss key environmental characteristics of the facility and surrounding properties that are relevant to the RFI and evaluation of exposure pathways. This may include facility hydrogeology, groundwater characteristics/usability, presence of streams]

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and rivers, etc. EPA recommends these discussions be drafted with appropriate technical experts present (e.g., hydrogeologists).]

c. Areas of Concern (AOCs)/ Solid Waste Management Units (SWMUs) descriptions

[Provide a list the Areas of Concern (AOCs), Solid Waste Management Units (SWMUs), and wastes handled at those locations. It is crucial that the list be consistent with the facility’s Permit, Order, and/or RCRA Facility Assessment (RFA). Describe any discussions between the regulatory authority and facility on the SWMUs/AOCs needing or not needing additional investigation. This discussion may address, as appropriate, contamination beyond the facility boundary].

d. Previous releases

[Provide a description of any previously documented and suspected releases.]

e. RCRA regulatory history

[If applicable, summarize the facility’s RCRA regulatory history (e.g., compliance orders, closures, etc.) that could affect the investigation’s scope.]

f. Other permitted activities

[If applicable, summarize the discussion of the facility’s non-RCRA permits (e.g., stormwater, NPDES, air) which could affect the RFI, and interpretation and evaluation of facility data (e.g., does the facility have a permitted storm water discharge upstream of a SWMU?).]

g. Access or physical constraints

[Summarize physical and/or operational characteristics of the facility that limit and/or prevent access to contamination. Describe how these physical and/or operational characteristics may affect sampling and current exposures. The discussion should clearly indicate the exact locations of any access limitations.]

h. Other potential areas of investigation based on facility history

[Describe any facility investigations which may not necessarily be tied to the defined SWMUs/AOCs and releases discussed above (e.g., new areas of contamination).]

i. Other

[If necessary, provide a summary of the facility’s characteristics and history that are not covered under the above headings (e.g., CERCLA or State cleanup actions.)]

III. Conceptual Site Model

The following sections describe the [facility name] Conceptual Site Model (CSM). The CSM is based on information currently available for the facility and surrounding areas. This information may be updated based on new data or information that is generated during the investigation.

[It is envisioned that the regulatory authority and facility would complete a tabularized or text CSM or both. An example of a tabularized CSM is provided in Enclosure 1. Human health and ecological risk assessors should be consulted during the development of the CSM.]

a. Sources and extent of known contamination

[Provide a list of sources of contamination (e.g., tanks, landfill, AOCs etc.), their location, and extent of known impacts for all environmental media within and beyond the facility boundary. Consider specifying the types of contaminants/Contaminants of Potential Concern (COPCs) for all sources and contaminated media.]

b. Contamination transport/Migration pathways

[For all sources of contamination, identify key migration pathways, such as soil leaching, vapor intrusion, groundwater discharge into surface water, and inter-aquifer exchange.]

c. Tentative Exposure pathways

[Describe current and future exposure pathways for all known and/or suspected contaminated media. Note that because the exposure pathways evaluation is being performed prior to the completion of the investigation, the exposure pathways would typically be considered tentative (and the CAF drafted accordingly) until the investigation is completed and the complete pathways can be confirmed. . The tentative exposure pathways may need to be broken out according to individual or groups of SWMUs/AOCs or other defined exposure units. Consider having the exposure pathway evaluation and identification of units be performed by or in consultation with human health and ecological risk assessors.]

i. Exposure receptors

[Summarize the current and future human and ecological receptors within and beyond the facility boundary. This may include the receptor population(s) (residential, commercial, recreational, etc.) and receptor age(s) (child/adolescent/adult). Provide a description of current operations and current land uses for the facility and neighboring properties, as well as. The reasonably expected future land use for the facility and surrounding properties.]

ii. Exposure point and exposure medium

[Document the point of potential human and ecological contact with the

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contaminated medium (e.g., soils, water, or air). The contaminated medium (exposure medium) may include the source itself or other media impacted by releases from the source.]

iii. Exposure routes

[Document the routes of exposure (e.g., ingestion, inhalation, dermal contact) at each exposure point.]

d. Discussion of unknowns and uncertainty

[Discuss data gaps and how these gaps will be addressed (e.g., sampling).]

IV. RFI Workplan

[Discuss the key elements that the parties anticipate including in the RFI work plan.]

a. Scope and objectives of the investigation

[Summarize the scope and key objectives of the RFI. This may also include a discussion of the performance objectives of the RCRA process (e.g., Corrective Action goals).]

b. Screening levels

[Specify the source of the risk-based screening levels that should be used for each environmental media (e.g., use of EPA’s residential soil RSLs for screening soils and sediments beyond the facility boundary)]

c. Adaptive approach

[During the CAF process, the administrative authority and facility may identify flexible and adaptable sampling approaches (e.g., iterative sampling) that could improve the efficiency and timeliness of the investigation by reducing the number of field mobilizations and/or exchanges between the parties during phases of the investigation. This section should summarize these approaches.]

d. Quality Assurance Project Plan (QAPP)

[Describe the key elements and special conditions of the QAPP]

i. Data quality objectives

[Summarize the data quality objectives for the investigation.]

ii. Standard Operating Procedures

[Summarize discussion pertaining to Standard Operating Procedures (SOPs) used to conduct sample and data analysis.]

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e. Modeling

[Summarize how modeling will be used to evaluate the facility, such as appropriate use and expectations for initial and ongoing calibration and validation.]

f. Sampling approach/design

[Provide a summary of sampling methods and approaches to be implemented during the investigation, which may include, but is not limited to soil sampling depth intervals, well locations, and sampling schemes (e.g., random).]

g. Sample analysis

[Provide a summary of the COPCs to be analyzed in each environmental medium and/or SWMU/AOC, as well as required detection limits (e.g., below 10^{-6} cancer screening levels), etc.]

h. Use of historical data

[Provide a brief summary of how historical data will be used to scope the investigation (e.g., whether data is adequate and reliable enough that a particular location need not be resampled). Also, consider discussing the use of historical data in risk assessments.]

i. Background

[Provide a brief summary on how background will be derived, evaluated, and used in risk assessments. This will likely include the locations and amount of background sampling to be performed.]

j. Health and Safety Plan

[Provide a brief discussion on any special circumstances pertaining to the facility's Health and Safety Plan of which both parties should be aware, including those that could affect the investigation, such as overhead power lines, railroads, and high hazard processes within an operating facility.]

k. Community involvement and environmental justice

[Summarize any discussion pertaining to community involvement and environmental justice issues/concerns that could influence the project.]

l. Work plan implementation schedule

[Provide a schedule of the RFI activities, including a schedule of sampling activities, notifications, and interim deliverables (if necessary). It is crucial for the scheduling to be consistent with the facility's Permit or Order requirements.]

V. Interim Measures

[This section should briefly summarize any proposed or planned Interim Measures (IMs) at the facility and any discussion on IMs between the regulatory authority and owner/operator. This could include a description of the IM, its scope and objectives, and schedule for its implementation.]

a. **Immediate IMs**

[Identify and summarize the implementation of immediate IMs. Consider including a discussion on the use of immediate IMs that may be part of the overall facility remedy.]

b. **Future potential IMs**

[Summarize any discussion on SWMUs/AOCs where IMs may be considered in the future, but immediate action is not necessary. (e.g., a discussion on the use of IMs to facilitate cleanup in advance of a final remedy)]

VI. Goals and Expectations

Prior to and during the CAF meeting, the [regulatory authority] and facility identified the following goals and expectations. Each goal and expectation is summarized below.

[Goals and expectations can be thought of as key project management or risk management issues requiring resolution specific to the RFI and ultimately Corrective Action at the facility. The examples below may or may not be relevant for a specific facility. It may be useful to identify as goals and expectations in this section, key elements of other discussions in the CAF, such as elements of the site characterization, CSM, and/or RFI workplan discussions identified in Sections II, III, and IV above, respectively.]

- Land use/reasonably expected future land use related to characterization and remediation
- Existing background conditions and consideration in RFI process
- Use of historical data
- Use of presumptive remedies
- Expected groundwater use/process for addressing groundwater contamination including State, Federal, and local requirements
- Coordination with other programs
- Potential facility process/land use/owner changes
- Toxicity/criteria changes
- Expected risk range issues (Target Cancer Risk and Non-Cancer Hazard Index)
- Expected process for addressing remediation
 - Unknown sources (if source cannot be found)

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- Source removal vs. source control (containment)
- Use of risk based or pathway elimination approach
- Potential for determination of technical impracticability (TI)
- Use of institutional and engineering controls

VII. Other Potential Issues

a. Format for data/ information exchange/ submissions

[Describe the format of electronic data and reports to be submitted to the administrative authority. This may also include the methods and ground rules for routine correspondence and updates, such as communications between the administrative and facility’s technical experts. It is crucial to be consistent with the facility’s Permit or Order requirements.]

b. Interim submissions approaches

[A CAF need not address every technical or administrative detail of the RFI, such as modeling parameters or exposure factors. However, should the regulatory authority and facility identify approaches or submissions on technical or administrative issues that can improve project efficiency, the parties may wish to document these for future reference. For example, the parties may identify a preferred procedure for information exchange, that is consistent with permit or order requirements.]

c. Schedule of deliverables (e.g., RFI workplan)

[This section should summarize the schedules of any action items generated as a result of CAF meeting. Additionally, this section should describe when and how often the CAF will be revisited for updates and/or revisions.]

d. Elements of RFI

[List the elements, and associated materials, necessary for a complete RFI.]

e. Risk Assessment

[Summarize the scope of the risk assessment, such as whether it is a baseline risk assessment or streamlined risk evaluation. This may also include any discussion on interim submissions, such as a risk assessment work plan.]

Table 1. Initial Conceptual Site Model*
[Depending on the size and complexity of the facility, a table may need to be completed for individual or groups of SWMUs/AOCs or other defined exposure unit.]

Contaminant Source/Contaminated Media ¹	Transport/Migration Pathway (e.g., leaching to GW, volatilization, plant uptake, fugitive dust emissions, runoff)	Scenario Timeframe (current or future)	Exposure Medium ² (contaminated media)	Exposure Point (the point of contact with exposure medium)	Within or Beyond the Facility Boundary	Receptor Population (e.g., resident, commercial, industrial)	Receptor Age (child/adult)	Exposure Route (ingestion, inhalation, dermal contact)

*Guidance on how to complete this table is can be found in EPA Risk Assessment Guidance including, but not limited to RAGS Parts A and D.
¹ The contaminant source/contaminated media can include the sources of releases (e.g., tanks, spills, landfills, lagoons, etc.), as well as the media directly impacted by those releases.
² The exposure medium may be the primary contaminated source/contaminated media or media impacted from contaminants that have been transported or migrated from the primary source.